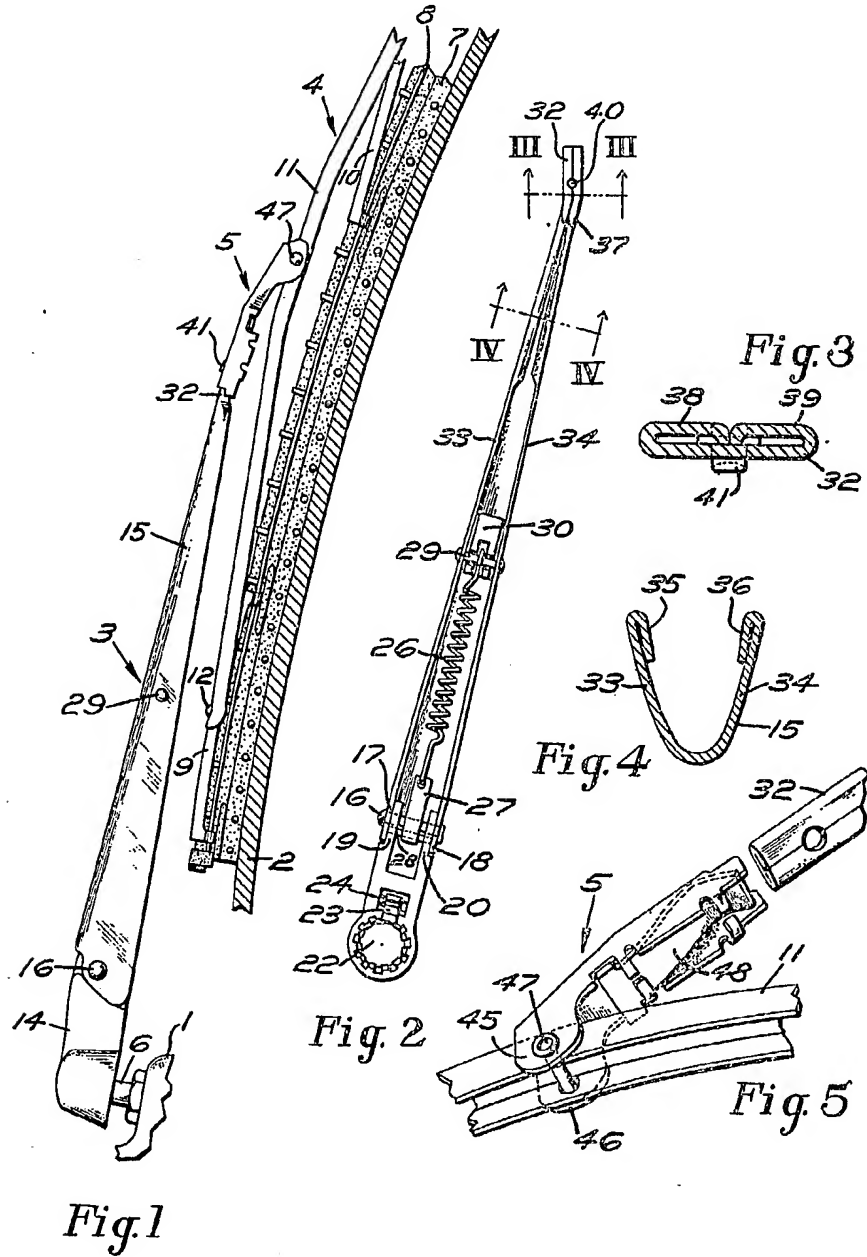


This drawing is a reproduction of  
the Original on a reduced scale.



# PATENT SPECIFICATION

DRAWINGS ATTACHED

838,419



Date of Application and filing Complete Specification July 13, 1956.  
No. 21797/56.

Application made in United States of America on July 13, 1955.

Complete Specification Published: June 22, 1960.

Index at acceptance: — Class 138(1), S1.

International Classification: — A47L.

## COMPLETE SPECIFICATION

### Improvements in or relating to Windscreen Wiper Arms

WE, TRICO PRODUCTS CORPORATION, a corporation organized under the laws of the State of New York, United States of America, of 817 Washington Street, Buffalo, New York, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

Heretofore windscreen wiper arms have generally comprised an elongated section of flat stock having at one end a channel shaped head portion by which it was attached to the rockshaft, and in which a spring biasing the arm towards an associated windscreen was confined, and having at its opposite end an attaching portion adapted for connection to the windscreen wiper blade.

With the ever-increasing speeds of vehicular travel, and the advent of relatively sharply curved windscreens, higher relative wind velocities have been encountered which tend to lift the wiper clear of the screen. To counteract this undesirable occurrence, heavier springs have been employed but have proved to be unsatisfactory because the heavier springs will result in excessive contact pressure, diminishing the efficiency of the wiping action, and furthermore because the stock comprising the main portion of the arm tends to flex and lift the blade from the screen and this condition arises even when the heaviest spring permissible is employed to bias the wiper towards the screen. Constructing the arm of heavier stock, to diminish its flexibility, is undesirable because it excessively increases the inertia of the arm.

Accordingly, it has more recently been proposed to provide an arm of channel shape substantially throughout its length, thereby to increase the rigidity of the arm to withstand flexure caused by wind velocities commonly encountered without increasing the inertia of the arm. This construction has substantially overcome the problem, but it

has been found that at the junction between the channel shaped arm section and the blade attaching portion, the arm is subject to undesired twisting and flexing to the same extent as an arm of flat stock.

A windscreen wiper arm according to the present invention comprises a main body part of channel section with flanges which, in use, are directed towards a windscreen, the body part being joined at one end to a portion formed for attaching to a windscreen wiper blade, and each longitudinal margin of the attaching portion, and of the body part adjacent to the attaching portion, being folded back upon itself to provide a side reinforcement which extends from an intermediate point in the length of the body part through the junction of the attaching portion and the body part.

The accompanying drawings show one example of a windscreen wiper arm according to the present invention. In these drawings Fig. 1 is a side elevation of the wiper arm as it appears in use, certain parts of the attached wiper blade being broken away for ease of illustration; Fig. 2 is a bottom plan view of the wiper arm; Fig. 3 is an enlarged transverse section on the line III — III in Fig. 2; Fig. 4 is a somewhat less enlarged transverse section on the line IV — IV in Fig. 2; and Fig. 5 is a perspective view of the attaching portion of the arm and an associated blade attaching clip.

In Fig. 1 the numeral 1 generally designates the cowl of an automotive vehicle having a windscreen 2. The wiper arm 3 is formed adjacent one end to provide a blade attaching portion 32 to which a blade 4 is attached, through a clip 5. At its other end the arm 3 is mounted on a rockshaft 6 which is connected to a conventional wiper motor, not illustrated, for operation in a known manner.

The blade 4 can be of conventional form, herein illustrated as being adapted to clean a curved window surface, comprising for example an elongated flexible blade body 7

[Price 3s. 6d.]

urged into surface conformance by the pressure distributing, substantially laterally rigid but otherwise flexible backing 8 to which pressure distributing yokes 9, 10, and 11 are connected, the attaching clip 5 being connected to the yoke 11 which is in the nature of a primary pressure-distributing yoke having a pivotal connection with the yoke 9 at 12. The details of the wiper blade *per se* form no part of this invention.

The wiper arm 3 comprises a head part 14 and a main body part 15 pivoted thereto by a pin 16 extending between and through spaced ears 17 and 18 on the main body part 15 which overlap inwardly offset ears 19 and 20 on the head part 14.

The head part 14 has a tapered splined bore 22 which receives a tapered and preferably serrated drive head, not illustrated, on the outer end of the rockshaft 6, to provide a driving connection between the rockshaft and the arm. A flat spring catch 23 fits in a recess 24 within the head part 14 and extends laterally inwards in relation to the bore 22 to engage beneath the tapered drive head on the rockshaft to releasably lock these parts against separation.

The main body part 15 is of tapered, channel shape, with flanges directed towards the windscreen, as clearly seen in Figs. 1, 2 and 4, the taper being towards its outer end and in respect of both thickness and width.

The body part is urged about its pivot 16 and towards the windscreen 2 by a coil spring 26 which is attached at one end to a part 27, which is in turn attached to a pin 28 extending between the ears 19 and 20 at a position rearwardly of and beneath the pin 16, to provide the desired turning movement. At its other end, the spring 26 is connected to a pin 29 which extends between the opposite flanges of the main body part 15, and to increase the rigidity of the assembly a filler block 30 fits within the main body part 15, this filler block being grooved to receive the pin 29 and the end of the spring 26.

It is a particular feature of the wiper arm that it is reinforced throughout the blade attaching portion 32 of the arm, which is flattened transversely, and the main body part adjacent thereto. To this end, the margins of the flanges 33 and 34 of the main body part 15, beginning at a point intermediate the opposite ends thereof and preferably substantially midway between the filler block 30 and the attaching portion 32, are folded back upon themselves, at 35 and 36, respectively, and this folding back is continued through the junction between the main body part 15 and the attaching portion 32, which is approximately at the point 37, and throughout the attaching portion 32, where the folded back margins, which are a continuation of the margins 35 and 36, are indicated at 38 and 39.

These margins 38 and 39 are coplanar and abut each other and are turned inwards to space the coplanar margins from the central part throughout the blade attaching portion. Thus the attaching portion is in effect a flattened tube of substantial strength. With the arm thus reinforced, undesired flexing and twisting is avoided. The attaching portion is shown as formed as an integral part of the main body part, but need not be integral.

The attaching portion 32 is then struck outwards, i.e. away from the windscreen, at 40 to provide a projecting dimple having an inclined top which acts as a detent 41. The struck part 40 interlocks the folded over margins 38 and 39 with the central part of the attaching portion 32 and thereby adds to the overall strength.

While the attaching portion 32 could be in the form of a curved saddle or tongue adapted to nest with a correspondingly curved part formed on a blade attaching clip, in the example shown the attaching portion comprises a straight extension of the arm main body part for use with a bayonet type attaching clip 5 of channel form having ears 45 and 46 straddling the yoke 11 and pivotally connected thereto by the pin 47, the clip having in its flat top wall an aperture to receive the detent 41. The clip 5 carries a flat leaf type spring 48 urging the arm against the top wall of the clip 5 with the detent 41 engaging in the aforesaid aperture to releasably lock the arm and the clip together. This type of clip better supports the attaching portion of the arm against torsion than where rocking action is controlled solely by an arm end of curved saddle form, and furthermore confines blade rocking to a point removed from the arm end and reduces the turning couple on the arm end by blade rocking, thereby increasing the overall strength of the windscreen cleaner. The reinforced straight attaching portion is admirably suited for use with such a clip, and permits the use of a relatively long attaching portion to secure a better interlock with the clip.

#### WHAT WE CLAIM IS:—

1. A windscreen wiper arm comprising a main body part of channel section with flanges which, in use, are directed towards a windscreen, the body part being joined at one end to a portion formed for attaching to a windscreen wiper blade, and each longitudinal margin of the attaching portion, and of the body part adjacent to the attaching portion, being folded back upon itself to provide a side reinforcement which extends from an intermediate point in the length of the body part through the junction of the attaching portion and the body part.

2. A wiper arm according to Claim 1, in which the blade attaching portion is flattened transversely while the longitudinal margins of the body part other than the attaching por-

tion are folded inwards against the inner side walls of the channel.

3. A wiper arm according to Claim 2, in which the folded back margins of the attaching portion are coplanar.
- 5

4. A wiper arm according to Claim 3, in which the coplanar margins abut each other and are turned inwards to space the coplanar margins from the central part throughout the blade attaching portion.
- 10

5. A wiper arm according to any of the pre-

ceding Claims, in which the attaching portion is struck to provide a detent for interlocking with a windscreen wiper blade attaching clip.

6. A wiper arm according to Claim 1 substantially as described with reference to the accompanying drawings.
- 15

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Southampton: Printed for Her Majesty's Stationery Office, by Cox & Sharland, Ltd.—1960.

Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.